



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

NOTICES FROM THE LICK OBSERVATORY.

PREPARED BY MEMBERS OF THE STAFF.

PHOTOGRAPHIC PHOTOMETRY.

Nature for October 10, 1889 (p. 584), has an abstract of a very important paper by Capt. ABNEY, F. R. S., on this subject, as follows :

“The author concludes, from his experiments, that the deposit of silver made by different intensities of light varies [in density] directly as the intensity of light acting—this, of course, within such limits that reversal of the image is not commenced and that the film is not at any part exhausted of the silver salt which can be reduced.”

Experiments by Mr. LEUSCHNER on this same question are printed in the present number. E. S. H.

MR. BRETT ON THE PHYSICAL CONDITION OF *MARS*.

Publications No. 5 of the Society (page 122), contains a *résumé* of a recent paper by M. FLAMMARION, on the physical condition of *Mars*. The fundamental assumption of that paper is that the dark markings on *Mars* represent areas of water. This assumption, while probable, is not yet proved.

A paper by Mr. JOHN BRETT, F. R. A. S., in the *Monthly Notices Royal Astronomical Society* for 1877 (vol. 38, p. 58), on the same subject, has not, it appears, received the attention it deserves.

It is worth while to summarize it here, in order to accent the wide difference of views held by observers of this planet, and because of its suggestiveness in many regards.

Mr. BRETT's conclusions are based on his observations of 1877. He points out, first, that *Mars* does not show the same delicacy of detail as *Jupiter*, for example, under like conditions ; and he attributes to *Mars* an atmosphere of considerable opacity on this account. As the details of the planet's surface vanish before they reach the limb, while they are best seen at the center of the disc, and as the disc is brightest at the limb, the conclusion is that the markings themselves are situated below the surface of a tolerably dense atmosphere. The chief topographical features on *Mars* are permanent, and hence the body of the planet is solid. There are few or no

clouds on *Mars*. This fact alone is fatal to the belief that the "land" and "water" on *Mars* act as on the Earth. A whole opposition of *Mars* may pass and no changes of its own atmosphere be made out.

It is certain (from spectroscopic observations) that watery vapor exists in the atmosphere of *Mars*. It does not necessarily follow that the vapor is anywhere condensed into visible clouds. If the polar caps are veritable "snow-caps," then clouds *must* exist in the atmosphere. Chilled water-vapor *must* produce clouds. As no (or few) evidences of clouds exist on the equatorial regions of the planet, Mr. BRETT's conclusion is that the so-called "snow-caps" cannot be snow-fields at all.

All the *dark* markings disappear before they reach the limb of the planet, while the "snow-caps" themselves are best seen at the limb, and often project far beyond it. This projection has been laid to irradiation. Mr. BRETT thinks that the "snow-caps" are, in fact, clouds in the higher and colder regions of the atmosphere. The dark patches near the caps he supposes to be their shadows. He assumes that the regions near the poles are the only ones cool enough to condense the (invisible) water-vapor into visible clouds. Moreover, it follows that the surface of the planet in general is hot—hot enough to make the formation of clouds impossible; and it is likely, consequently, that the "seas" are not water.

Mr. BRETT also points out that ordinary atmospheric absorption will not account for the fact that the central parts of *Mars* are red, while the limbs are "white" (lemon-yellow or yellowish white in the great telescope.) The nature of the absorption at the limb is one of the most difficult points to account for on a theory like that of M. FLAMMARION's, previously cited. Mr. BRETT attempts no special explanation of the differences of color between the "seas" and the "continents,"—nor does he mention the "canals," of course.

The above summary is given, as was said, simply to indicate the wide differences between plausible explanations of the phenomena observed on *Mars*. The fact that such differences of opinion are even possible indicates the unsatisfactory nature of our knowledge of this planet—and we know more of this planet than of any other.

E. S. H.

"THE CHIEF DISCOVERERS OF COMETS."

Mr. W. F. DENNING, in the *Observatory* for November, 1889, gives the following table, which is well worth reprinting. It has been completed to 1890:

NAME OF DISCOVERER.	Period of Observations.	No. of Comets discovered.
CHARLES MESSIER	1760-1798	13
P. F. A. MECHAIN	1781-1799	8
CAROLINA HERSCHEL	1786-1795	6
JEAN LOUIS PONS	1802-1827	30
PADRE DI VICO	1844-1846	5
T. J. C. A. BRORSEN	1846-1851	5
WILHELM KLINKERFUES	1853-1863	6
CARL BRUHNS	1853-1864	7
GIOVAN B. DONATI	1855-1864	5
F. AUG. T. WINNECKE	1858-1881	13
WILHELM E. TEMPEL	1859-1884	18
LEWIS SWIFT	1862-1890	8
J. COGGIA	1867-1877	7
ALPHONSE BORELLY	1871-1890	7
E. E. BARNARD	1881-1890	13
W. R. BROOKS	1883-1890	12

CONTRIBUTIONS OF RAPHAEL AND OF ALBRECHT DÜRER TO
ASTRONOMY.

It may not be known to all that RAPHAEL'S Madonna di Foligno has a special interest to astronomers. It is, I believe, the only painting of any note which commemorates an astronomical event. This picture was painted by RAPHAEL in 1511, and placed in the Church of Ara-Cœli, as a votive offering from SIGISMUND CONTI, secretary to Pope JULIUS II, for his miraculous escape from death by an aerolite. The picture was removed to the Convent of Foligno in 1565 by a niece of CONTI'S, and was carried off by the French in 1792. It was returned in 1815 and is now in the Vatican. Such is a brief sketch of the wanderings of this exquisite painting. Its purely astronomical interest consists in the portrayal of the fall of the aerolite itself, which occupies the centre of the picture. The